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NSA MID SOUTH  
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LETTER TRANSMITTING SUPPLEMENTARY RISK ASSESSMENT REPORT FOR 29  
OCTOBER 2001 STATEMENT OF BASIS FOR BASE REALIGNMENT AND CLOSURE SOLID  
WASTE MANAGEMENT UNITS 1, 4, 6, 8, 10, 11, 16, 18, 21, 26, 27, 31, 36, 38, 40, 42, 44, 50,  
51, 52, 53, 60, 62, 64, 66 A  
6/14/2002  
U S EPA REGION IV



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

June 14, 2002

4WD/FFB

Commanding Officer  
Attn: Jim Reed  
Code 1872  
SOUTHNAVFACENGCOM  
2155 Eagle Drive  
North Charleston, South Carolina 29419-9010

Subject: Supplementary Risk Assessments for BRAC SWMUs 1, 4, 6, 8, 10, 11, 16, 18, 21, 26, 27, 31, 36, 38, 40, 42, 44, 50, 51, 52, 53, 60, 62, 64, 66, and 67

Dear Mr. Reed,

Enclosed is supplementary risk assessment support for the October 29, 2001, Statement of Basis for BRAC SWMUs 1, 4, 6, 8, 10, 11, 16, 18, 21, 26, 27, 31, 36, 38, 40, 42, 44, 50, 51, 52, 53, 60, 62, 64, 66, and 67. The narrative describing the risk assessments in the Statement of Basis for the SWMUs was incomplete and sometimes incorrect. This supplemental report is provided as part of the administrative record and to serve as an aid in clarifying risk management decisions.

If you would like to discuss the report or have questions please contact me at 404-562-8513.

Sincerely,

A handwritten signature in cursive script that reads "Jennifer Herndon".

Jennifer Herndon  
Remedial Project Manager

Enclosure

cc:  Public Works Office  
Clayton Bullington, TDEC - Nashville

**SUPPLEMENTARY RISK ASSESSMENTS FOR BRAC SWMUS 1, 4, 6, 8,  
10, 11, 16, 18, 21, 26, 27, 31, 36, 38, 40, 42, 44, 50 51, 52, 53, 60, 62, 64,  
66 AND 67**

**NSA MID-SOUTH,  
MILLINGTON, TN**

## INTRODUCTION

This report provides supplementary risk assessment support for the Statements of Basis for the SWMUs listed in this report title. Because the narrative describing the risk assessments in the statements of basis was incomplete and sometimes incorrect, this report is provided as part of the administrative record and as an aid to clarify the decision-making process.

## METHODOLOGY

### *Human Health Risk Assessment*

The maximum detected concentration for any chemical detected at a given SWMU was used as the exposure point concentration (EPC). Cancer risks for individual chemicals were estimated by taking a ratio between the EPC and the value from the Region 9 PRG table and multiplying this ratio by 1E-06. Hazard quotients for individual chemicals were estimated by taking a ratio between the EPC and the value from the Region 9 PRG table. Hazard indices and aggregate cancer risks were determined by simple addition of HQ values and individual chemical risk estimates respectively. The residential scenario and the industrial worker scenario were considered.

### *Ecological Risk Assessment*

A similar procedure was followed for ecological risk assessment using the Region 4 ecological screening values as the denominator to arrive at an HQ value for individual chemicals. The HQ values were summed to obtain an HI. Chemicals with HQ values greater than 1 were considered COPCs. Note that this procedure follows the process for ecological risk assessment. This initial COPC screening is steps 1 and 2 of the ecological risk assessment process.

Step 3a of the ecological risk assessment process was used to refine the COPC list. The list was refined by comparison to background values obtained from site documentation. The COPC list was further refined by comparison of the levels of bioaccumulative chemicals to soil screening values derived from a simple food chain model. Table 1 shows the background comparison values and Table 2 shows the food chain screening values.

Table 1. Background Values

<i>Chemical</i>	<i>Background Value</i>
Beryllium	0.96
Chromium	26.4
Cobalt	15
Copper	23.6
Lead	28.7
Mercury (inorganic)	1.1
Vanadium	49.6
Zinc	88.3

Table 2. Food Chain Derived Values

<i>Chemical</i>	<i>NOAEL Mam SSL</i>	<i>LOAEL Mam SSL</i>	<i>NOAEL Bird SSL</i>	<i>LOAEL Bird SSL</i>
	<i>mg/kg</i>	<i>mg/kg</i>	<i>mg/kg</i>	<i>mg/kg</i>
Chromium	170000.00	NA	NA	41.40
Copper	632.58	833.33	NA	510.85
Lead	373.25	1696.82	NA	93.56
Mercury (inorganic)	54.17	NA	NA	7.45
Methylmercury	0.01	0.07	NA	0.53
Nickel	2123.43	4247.10	NA	885.91
Selenium	2.83	12.86	NA	8.28
Silver	NA	NA	NA	NA
Thallium	0.10	1.06	NA	NA
Vanadium	2.75	27.57	31.67	NA
Zinc	NA	NA	NA	1084.62
Tin	NA	NA	NA	139.92
Dioxin TEQ	2E-6	2E-5	7e-6	7e-5
Total Pesticides	3.22	5.19	0.00	2.09
Total PCBs	0.06	0.63	0.13	1.33
phthalates (total)	36.33	363.33	0.91	NA

Values for BAFs and TRV were obtained from the Region 6 combustion ecological risk assessment guidance and the Toxicological Benchmarks for Wildlife from ORNL. The details of these food chain screening levels are shown in the attached spreadsheet. For total pesticides, the SSL values are the geometric means of the group of corresponding values for individual pesticides.

For ease of presentation, site concentrations were compared with the largest food chain value. Note that this procedure is not completely consistent with ecological risk assessment practices in Region 4. Hence, this document and Table 2 should not be construed as having application to any other site or any other document. Use of these food chain-derived values for screening at other sites is strongly discouraged.

## UNCERTAINTIES

Aside from the inherent uncertainties in the risk assessment process, there was an additional uncertainty with this procedure. Chemical concentrations at the various SWMUs were obtained from an electronic copy of the RFI documents on a CD-ROM. When the Navy's contractor created this CD-ROM, the original paper copy of the document was scanned to produce a graphic object. These graphic objects (each page) was then converted to an Adobe

Acrobat portable document format (pdf) file. Because of the conversion to graphics, the text in the tables that contained the chemical concentrations was barely readable. Also because of the graphic conversion, the familiar “copy and paste” procedure for electronic data copying was unusable. Therefore, the tables were copied by a human being at a computer, and the fallibility of this copying effort is an additional source of uncertainty.

If this graphic copy is the sole electronic copy of the site record, additional expense may have to be incurred in the future if reliable data is needed.

## **SWMU 1**

### ***Site Description:***

SWMU 1 is an asphalt area of approximately 1.5 acres at the west end of inactive Runway 09 that contains a former fire-training area. The 200-foot wide asphalt runway is in poor condition because of weathering and lack of maintenance. Presently, remnants of the fire-training area consist of a 20-foot X 20-foot area enclosed by railroad rails and a 6-foot high pile of soil west of the burn area. SWMU 1 was reportedly used as a simulated crash site for fire-fighting training from 1960 through 1984. Monthly fire training consisted of spraying fuel on an aircraft shell within the 20-foot square box, igniting it, and extinguishing the fire. Approximately 55 to 100 gallons of fuel were used in each training session. Two previous above-ground storage tanks (ASTs) have been removed.

### ***Human Health Preliminary Risk Evaluation:***

The hazard index and cancer risk for a residential use scenario were 0.55 and 3E-5 respectively. The hazard index and cancer risk for an industrial use scenario were 0.13 and 5E-6 respectively.

### ***Ecological Preliminary Risk Evaluation, Steps 1,2 and Refinement of COPCs***

Based on the available samples, there was no unacceptable ecological risk at SWMU 1.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 1	HI = 52 Chromium Lead Total Pesticides	HI = 11 Total Pesticides	HI < 1 No COPCs

## **SWMUs 4, 6, 31, 38 - DRAINAGE DITCHES**

### ***Site Description***

The site consists of 4 drainage ditches. SWMU 4 is an underground sewer and drainage ditch near a previous plating shop. SWMU 6 is an underground storm sewer and drainage ditch near the flight line. SWMU 31 is the aircraft wash rack that drained into SWMU 6. SWMU 38 is a collection of drainage ditches on the north side of the base.

### ***Human Health Preliminary Risk Evaluation***

At SWMU 4, the HI for the resident was 174 and the cancer risk was 3E-05. The HI for the industrial worker is 12 and the cancer risk is 4E-06. The high HIs are due solely to a single high hit of 2-methyl-4-chlorophenoxyacetic acid. It is unlikely that this detection would pose a health risk, being a single detection.

At SWMU 6, the HI for the resident is 3 and the cancer risk is 2E-04. The HI for the worker is 0.6 and the cancer risk is 3e-5.

At SWMU 31, the HI for the resident is 1 and the cancer risk is 6E-04. For the worker, the HI is 0.05 and the cancer risk is slightly above 1E-04, indicating some possible concern. In the PRE, high hits were used and the risk estimates tend to overestimate uncertainty in risk due to sampling.

At SWMU 38, the HI for the resident is 0.9 and the cancer risk is 1E-04. The HI for the worker is 0.13 and the cancer risk is 2E-05.

### ***Ecological Preliminary Risk Evaluation, Steps 1, 2 and Refinement of COPCs for the Drainage Ditches***

With the exception of the herbicides such as MCPA, dalapon and dinoseb, ecological risks from the ditches were all below levels of concern. Toxicity reference values for herbicides are not readily available and the lack of a risk assessment for these chemicals should be considered a data gap.

The table below show the COPCs and HI at each step of the ecological risk assessment process.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 4	HI = 92 Total Pesticides Mercury (inorganic) Zinc Barium Vanadium Chromium 2,4-D 2,4,5-T Dalapon MCPA)	HI = 3 Total Pesticides Barium 2,4-D 2,4,5-T Dalapon MCPA	HI = 0.03 2,4-D 2,4,5-T Dalapon MCPA)
SWMU 6	HI = 371 Arsenic Barium Beryllium Cadmium Chromium Cobalt Lead Nickel Vanadium Zinc Total Pesticides Total PAHs 2,4-D 2,4,5-TP\ MCPA	HI = 351 Chromium Cobalt Lead Vanadium Zinc Total Pesticides Total PAHs 2,4-D 2,4,5-TP MCPA	HI = 5.4 Vanadium Total Pesticides 2,4-D 2,4,5-TP MCPA
SWMU 31	HI = 485 Cadmium Mercury (inorganic) Vanadium Copper Chromium Barium Zinc Lead Total pesticides Total PAHs Dicamba 2,4-D Dinoseb	HI = 239 Copper Chromium Barium Zinc Lead Cadmium Total pesticides Total PAHs Dicamba 2,4-D Dinoseb	HI = 2 No COPCs with HQs > 1

SWMU 38	HI = 124 Arsenic Chromium Lead Mercury (inorganic) Vanadium Zinc Total Pesticides Total PAHs Phthalates (total)	HI = 57 Lead Total Pesticides Total PAHs Phthalates (total)	HI > 1
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**SWMU 11 - NORTHSIDE OILED DIRT ROADS**

**Site Description**

Dirt roads on the north side of the base were sprayed with waste oil beginning in 1942 until the 1970's. The area sprayed is estimated at 150,000 square feet. The only data found for SWMU 11 was inorganic chemicals. Because waste oil, which presumably contained organic chemicals was used to spray the roads, and if no analyses for organic chemicals was performed, this lack of analyses should be considered a data gap.

**Human Health Preliminary Risk Assessment**

The HI in the residential scenario was 2 and the cancer risk was 2E-05. For the industrial worker, the HI was 0.2 and the cancer risk was 2E-06. For the resident, no one chemical had an HQ greater than 1.

**Ecological Preliminary Risk Assessment**

Based on the data available, there was no unacceptable ecological risk at SWMU 11.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 11	HI = 76 Cadmium Chromium Lead Mercury (inorganic) Nickel Thallium Vanadium Zinc	HI = 50 Cadmium Chromium	HI < 1 No COPCs

**SWMU 16 - N-94 ABOVE GROUND WASTE TANKS**

**Site Description**

Two 8000 gallon tanks were removed in 1998. They were used to stored waste oil and aviation fuel. The tanks were surrounded by a concrete berm. A soil removal of 100 cubic yards

occurred in 1998. The confirmation samples following this removal were used in the risk assessment.

**Human Health Risk Assessment**

The HI for the resident was 1 and the cancer risk was 3E-05. The HI for the worker was 0.1 and the cancer risk was 4E-06, all within acceptable limits.

**Ecological Risk Assessment**

Based on the data available, there was no unacceptable ecological risk for SWMU 11.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 16	HI = 131 Antimony Arsenic Chromium Vanadium Zinc Total PAHs	HI = 44 Total PAHs	HI < 1 No COPCs

**SWMU 26 - BUILDING N-102 BATTERY ACID NEUTRALIZATION UNIT**

**Site Description**

The unit consisted of a subsurface sink and crushed limestone dry well designed to neutralize battery acid prior to discharge to the sanitary sewer system.

**Human Health Risk Assessment**

The HI for the resident was 0.14 and the cancer risk was 2E-5. The HI for the worker was 0.03 and the cancer risk was 3E-6.

**Ecological Risk Assessment**

Based on the data available, there was no unacceptable ecological risk at SWMU 26.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 26	HI = 57 Chromium Vanadium Zinc Total PAHs	HI = 1.1 Total PAHs	HI < 1 No COPCs

## **SWMU 36 - NORTHSIDE SEWAGE TREATMENT PLANT INCINERATOR**

### ***Site Description***

This incinerator was used to burn nonhazardous paper and plastic from 1943 to 1984. The structure was demolished in 1984 and vegetation has grown up in the area.

### ***Human Health Risk Assessment***

The HI for the resident was 1.2 and the cancer risk was 4E-05. The HI for the worker was 0.15 and the cancer risk was 7E-06.

### ***Ecological Risk Assessment***

Based on the data available, the HI from total pesticides slightly exceeds 1.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 36	HI = 70 Antimony Arsenic Lead Mercury Total PAHs Total pesticides	HI = 66 Mercury Total PAHs Total Pesticides	HI = 1.2 Total pesticides

## **SWMU 40 - SALVAGE YARD NO. 1**

### ***Site Description***

The salvage yard closed in 1989. The area is unpaved and was used to store anchor chains, aircraft parts and other scrap. Part of the area is covered with asphalt. Historically, a gas station occupied part of the area. There are impacts from petroleum both in subsurface soil, loess groundwater and fluvial groundwater.

### ***Human Health Risk Assessment***

Because ARARs (MCLs) serve as cleanup levels for groundwater, a risk assessment was not performed for groundwater. MCLs are only loosely based on risk but are applied as cleanup levels at many sites. For soil, the HI for the resident is 1.4 and the cancer risk is 1E-04. The HI for the worker is 0.23 and the cancer risk is 2E-05.

### ***Ecological Risk Assessment***

Based on the data available, there was no unacceptable risk at SWMU 40.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 36	HI = 1513 Arsenic Beryllium Cadmium Chromium Lead Mercury Vanadium Zinc Aldrin	HI = 725 Cadmium Aldrin	HI < 1 No COPCs

**SWMUs 42 AND 53 - BUILDING N-12 AND N-126 INTERIM HAZARDOUS WASTE ACCUMULATION AREAS**

***Site Description***

These two sites are geographically contiguous and thus are grouped together. SWMU 42 was a hazardous waste accumulation area with possible PCB storage. SWMU 53 is an asphalt storage area used to store drums of TCE, paint thinner and other chemicals.

***Human Health Risk Assessment***

At SWMU 42, the HI for a future resident was 1.2 and the cancer risk was 5E-05. The HI for a worker was 0.2 and the cancer risk was 8E-6. At SWMU 53, the HI for a resident was 0.6 and the cancer risk was 2E-05. The HI for a worker was 0.06 and the cancer risk was 3E-06.

***Ecological Risk Assessment***

At SWMU 42, arsenic and barium had HQ values slightly greater than 1. At SWMU 53, cobalt had an HQ of 1.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 42	HI = 101 Arsenic Barium Cadmium Chromium Lead Vanadium Zinc Total Phthalates Total PAHs	HI =82 Arsenic Barium Lead Total Phthalates Total PAHs	HI =2 Arsenic Barium

SWMU 53	HI = 143 Barium Cadmium Chromium Cobalt Vanadium Zinc PCBs	HI = 9 Barium Cadmium Cobalt Zinc PCBs	HI = 1 Cobalt
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**SWMU 44 BUILDING N-102 HAZARDOUS WASTE ACCUMULATION POINT**

**Site Description**

SWMU 44 is a 20 foot by 100 foot gravel area where batteries were stored prior to disposal. In 1995, the top 6-8 inches of soil was removed and in 1998, an additional 12 cubic yards of soil was removed.

**Human Health Risk Assessment**

The HI for a future residential receptor was 1.5 and the cancer risk was 3E-05. The HI for a worker was 0.4 and the cancer risk was 5E-06.

**Ecological Risk Assessment**

Based on the data available, there is no unacceptable ecological risk from site soils.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 44	HI = 476 Cadmium Chromium Lead Mercury Vanadium Zinc Phthalates PAHs PCBs	HI = 458 Cadmium Chromium Lead Zinc Phthalates PAHs PCBs	HI < 1 No COPCs

**SWMUs 50, 51 AND 52 - HAZARDOUS WASTE ACCUMULATION POINTS AT BUILDING N-126, MAG-43, VR-60 AND VP-67**

**Site Description**

SWMU 50 was an accumulation area for car batteries. SWMU 51 was an accumulation area for paint thinner. SWMU 52 was an accumulation point for mineral spirits used by the VP-67 squadron. The three areas are contiguous.

**Human Health Risk Assessment**

At SWMU 50, the future resident has an HI of 1 and a cancer risk of 4E-05. The worker

has an HI of 0.2 and a cancer risk of 7E-6.

At SWMU 51, the future resident has an HI of 1 and a cancer risk 4E-05. The worker has an HI of 0.07 and a cancer risk of 7E-06.

No sampling for SWMU 52 was reported in the decision document, but it was stated that a previous recommendation for SWMU 52 was no further action indicating no unacceptable risk to human health.

**Ecological Risk Assessment**

At SWMU 50, there was no unacceptable ecological risk. At SWMU 51, the HI was slightly greater than 1 due to total pesticides. SWMU 52 could not be evaluated because there was no sampling.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 50	HI = 76 Arsenic Cadmium Chromium Lead Vanadium Zinc Total PAHs	HI =9 Arsenic Cadmium Lead Total PAHs	HI < 1 No COPCs
SWMU 51	HI = 156 Antimony Arsenic Cadmium Chromium Cobalt Vanadium Zinc Total Pesticides Total PAHs	HI = 81 Antimony Arsenic Barium Cadmium Chromium Cobalt Vansdmium Total Pesticides Total PAHs	HI =1.5 Total Pesticides

**SWMU 62 - M-21 ARRESTING GEAR**

**Site Description**

The arresting gear consists of two cement-lined pits near the runway. The arresting gear was used for pilot training. Hydraulic fluid, oils and fuels would be expected to be found.

**Human Health Risk Assessment**

The residential receptor had an HI of 3 and a cancer risk of 1E-04. The worker had an HI of 0.5 and an cancer risk of 2E-05.

### ***Ecological Risk Assessment***

Based on the available data, the HI was 2. However, no individual COPC had an HQ greater than 1.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 62	HI = 812 Antimony Arsenic Barium Beryllium Cadmium Chromium Lead Mercury Silver Vanadium Zinc Pesticides PAHs	HI = 769 Antimony Arsenic Barium Lead Silver Zinc Pesticides PAHs	HI = 2 No COPCs

### **SWMU 66 - RADAR DUMP AREA**

#### ***Site Description***

Discovered in 1994, the dump near a radar dish contained drums, stoves, refrigerators and other debris. The site is a ditch and for the risk assessment, the material in the ditch was considered surface soil.

#### ***Human Health Risk Assessment***

Considering the reported concentrations in surface soil, for the resident, the HI was 0.01 and the cancer risk was 3E-5. For the worker, the HI was 0.0005 and the cancer risk was 6E-06.

Considering the reported concentrations in sediment assessed as surface soil, the HI for the residential receptor was 0.8 and the cancer risk was 2E-05. For the worker, the HI was 0.06 and the cancer risk was 3E-06.

#### ***Ecological Risk Assessment***

For ecological risk from soil, the apparent risk driver is PCP with a HQ of 50. However, this HQ is based on the soil screening concentration. A food chain-derived value was not available. The distinction between sediment and soil in this ditch is somewhat artificial. Hence, sediment was treated as surface soil. The HI was slightly above 1.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 66 soil	HI = 115 PCP PAHs Pesticides Phthalates	HI = 115 PCP PAHs Pesticides Phthalates	HI = 50 PCP
SWMU 66 sediment	HI = 20 Arsenic Silver Total Pesticides Total PAHs	HI = 12 Silver Total Pesticides Total PAHs	HI = 1.4 Silver

### **SWMU 67 - HORSE PASTURE DUMP**

There was no sampling performed at this site. The risk assessment summary presented in the Statement of Basis indicates that existing conditions are considered protective of human health. Without some sampling, there is too much uncertainty to state that existing conditions at the site are protective. Obviously, a quantitative risk assessment could not be performed in this supplementary report. The lack of information may render any remedial decision difficult but, conversely, prior institutional knowledge of the site within the BCT may be a sufficient basis for a no further action decision.

### **SWMU 8 - CEMETERY DISPOSAL AREA**

#### ***Site Description***

This is a 5 to 8 acre disposal area near the runway and an old cemetery - hence, the name. Solid and hazardous wastes were disposed here from 1965 to 1980. In March of 1997, the Navy excavated soil at SWMU 8 based on the presence of SVOCs and dieldrin. In April of 1997, a second soil removal occurred. Following both these soil removals, the site was graded.

#### ***Human Health Risk Assessment***

Using the post-removal confirmation soil samples, the HI in a residential scenario was 0.8 and the cancer risk was 1E-04 with dieldrin as the main contributor to risk. The HI for a worker was 0.06 and the cancer risk was 2E-05. Considering groundwater, the HI for residential water use was 31 with acetone being the sole driver. The cancer risk was 2E-06. Acetone was not detected in subsequent sampling events and may be an artifact. Hence, site risks from soil and groundwater are within acceptable levels for both residential and industrial scenarios.

**Ecological Risk Assessment**

Based on the soil confirmation sample, there was no unacceptable ecological risk at the site.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 8 soil confirmation sampling	HI = 94 Pesticides Phthalates Antimony Chromium Cadmium Zinc	HI =55 Pesticides Phthalates Antimony Cadmium Zinc	HI < 1 No COPCs

**Comment on the Proposed Remedy**

The proposed remedy restricts the use of shallow groundwater based on a single high detection of acetone that was not able to be replicated. In addition, the proposed LUC restricts the site to nonresidential use. Given that the risk from soil is within the NCP risk range and the actual risk from acetone in groundwater is uncertain, you may wish to consider other remedies.

**SWMU 10, NORTHSIDE LANDFILL, EASTERN PORTION**

**Site Description**

This is a construction debris landfill operated from 1951 to 1986, from 13 to 20 acres in size. There are plans to maintain the site as a mowed field.

**Human Health Risk Assessment**

Based on the available sampling, the HI for a resident is 0.9 and the cancer risk is slightly above 1E-04. For a worker, the HI is 0.1 and the cancer risk is 2E-5.

**Ecological Risk Assessment**

The decision document states that because of plans to maintain the area as a mowed field, no viable ecological habitat is present. Birds, such as the American Robin, will forage for earthworms in a mowed field. Hence, the statement in the decision document is incorrect. The assessment reported in this supplementary document indicates no unacceptable ecological risk.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 10	HI = 127 Pesticides Phthalates PAHs Arsenic Mercury Chromium Lead Vanadium Zinc	HI =56 Pesticides Phthalates PAHs Lead	HI < 1 No COPCs

***Comment on the Proposed Remedy***

Please note that the risk evaluation for environmental chemicals does not support the remedy. A LUC for not-disturbance of the soils may be appropriate because of the immediate danger from construction debris but does not receive much support from the risk assessment.

**SWMU 18 BUILDING N-112 UNDERGROUND WASTE TANK**

***Site Description***

The site consists of an underground storage tank with a capacity of 550 gallons. In 1996, the tank pit was excavated to a depth of 8 feet and about 45 cubic yards of soil were removed. In 1998, a second removal was performed for about 100 cubic yards of soil. The highest TPH measurement in the confirmation sampling following this second removal was 250 ppm, below the TDEC cleanup goal of 500 ppm. VOCs in groundwater will be addressed as part of the Northside Fluvial Groundwater AOC.

***Human Health Risk Assessment***

The measured concentrations in soils were all below their Region 9 PRG values. Hence, no additional risk evaluation for human health was performed.

***Ecological Risk Assessment***

The text indicates that the entire area is paved. Photographic documentation should have been provided. The chemicals detected in soil were VOCs which generally do not present much ecological risk.

**SWMU 21 - N-10 UNDERGROUND WASTE TANK**

***Site Description***

The site is a former 3000 gallon UST, removed in 1991. In 1996, RFI sampling was conducted for surface soil, subsurface soil and groundwater. The groundwater has been incorporated into the Northside Fluvial Groundwater AOC and hence, will not be addressed here.

***Human Health Risk Assessment***

Based on the available sampling, the HI for a resident was less than 0.01 and the cancer

risk was 1E-5. For a worker, the HI was also very low and the cancer risk was 3E-06

**Ecological Risk Assessment**

The HI obtained with the SLERA was 26 based on pesticides and PCBs. After screening with the food chain model, the HI was 0.4.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 21	HI = 27 Pesticides PCBs	HI =27 Pesticides PCBs	HI < 1 No COPCs

**SWMU 27 - NORTHSIDE SEWAGE TREATMENT PLANT**

**Site Description**

The plant shut down in the 1950s and was demolished between 1970 and 1980. The decision document describes the site as overgrown with vegetation. In 2001, the vegetation was cleared.

**Human Health Risk Assessment**

For a resident, the HI was 3 and the cancer risk was 3E-04. For a worker, the HI was 0.2 and the cancer risk was 2E-05.

**Ecological Risk Assessment**

The decision document claims that clearing the vegetation from the site removed any habitat and thus, an ecological risk assessment was not necessary. This is incorrect. The ecological risk was slightly above the target level of concern with PAHs being the risk driver.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 27	HI = 186 Pesticides PAHs Antimony Arsenic Barium Beryllium Cadmium Chromium Cobalt Lead Mercury Silver Vanadium Zinc	HI =56 Pesticides PAHs Antimony Cadmium Vanadium	HI < 2 PAHs

**SWMU 60 - NORTHSIDE LANDFILL**

**Site Description**

SWMU 60 covers 3.5 acres and was used for the disposal of demolition debris. A soil removal based on the presence of TPH occurred in 1997. About 230 cubic yards of soil were removed. Samples were available as soil confirmation samples and loess groundwater samples.

**Human Health Risk Assessment**

Considering soil, for a future resident, the HI is 1.6 and the cancer risk is 8E-05. For a worker, the HI is 0.15 and the cancer risk is 2E-05. Considering both fluvial and loess groundwater together, the risk in a residential scenario is 1.4E-04 and the HI is 1.4.

**Ecological Risk Assessment**

Based on site sampling, there is no unacceptable ecological risk. However, no quantitative assessment was performed for herbicides so this remains an area of uncertainty.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 60	HI = 107 Pesticides PAHs Antimony Arsenic Cadmium Chromium Copper Lead Mercury Selenium Vanadium Zinc MCPA Silvex Dicamba	HI =58 Pesticides PAHs Arsenic Cadmium Copper Lead Selenium Vanadium Zinc MCPA Silvex Dicamba	HI =0.62 Herbicides without quantitative assessment

**Comment on the Proposed Remedy**

Because EPA considers groundwater a valuable and beneficial resource to be protected wherever possible, restricting the use of groundwater may not be a sufficient remedy. Has monitored natural attenuation been explored as an alternative?

**SWMU 64 - BUILDING N-16 MATERIALS STORAGE AREA**

**Site Description**

The site consists of a concrete pad used to store drums and equipment. Surface soil and subsurface soil samples were obtained. Groundwater will be considered as part of the Northside Fluvial Groundwater.

**Human Health Risk Assessment**

For a resident, the HI was 4 and the cancer risk was 2E-04. For a worker, the HI was 1.6 and the cancer risk was 4E-5.

**Ecological Risk Assessment**

The decision document claims that there is no ecological risk because of the concrete pad. If the pad is in disrepair, the soil in the cracks provide a foraging opportunity for terrestrial avian species. Therefore, a risk assessment was performed. Ecological risk was unacceptable because of the presence of PCBs. If the habitat is truly of sufficiently poor quality, then the estimate of ecological risk would have a small influence on the remedial decision. Generally, claims of poor habitat are not substitutes for ecological risk assessment.

Site	SLERA	Background Refinement	Food Chain Refinement
SWMU 64	HI = 1378 Arsenic Barium Cadmium Chromium Copper Lead Mercury Selenium Vanadium Zinc PAHs PCBs Pesticides	HI =686 Pesticides PAHs PCBs Arsenic Copper Lead Mercury Zinc	HI =11 PCBs